

**IN THE CLAIMS:**

1. (Currently amended) In a computer system having a user interface including a display and an input device, a method~~A method~~, comprising:

generating a solution set based on an evolutionary scheme in which an objective

function is a priori mathematically unexpressed,

presenting on the display data based on the solution set to at least one user,

receiving through the input device at least one input from the at least one user, the at

least one input based on the at least one user's evaluation of the presented

solution set, and,

based on the at least one input, using at least the evolutionary scheme and the at least

one input to generate an updated solution set, and repeating the presenting

and receiving.

2. (Original) A method according to claim 1, where the at least one user input includes at least one of: a rank of solutions in the solution set, a rating of solutions in the solution set, one or more fitness values, a selection of a solution in the solution set, a selection of a feature of at least one solution in the solution set, a termination of the method, an identification of parents for a genetic algorithm, at least one constraint, a modification of at least one constraint, a modification of at least one genetic operator, and a specification of at least one genetic operator.

3. (Original) A method according to claim 2, where the at least one genetic operator includes at least one of: selection, crossover, mutation, and elitism.

4. (Original) A method according to claim 1, where the method is terminated based on the at least one user input.
5. (Original) A method according to claim 1, where presenting data based on a solution set to the at least one user includes at least one of: presenting data based on the solution set in parallel, and presenting data based on the solution set in sequential order.
6. (Original) A method according to claim 1, where receiving at least one input includes aggregating the at least one input.
7. (Original) A method according to claim 1, where receiving at least one input includes weighting the at least one input from the at least one user.
8. (Original) A method according to claim 1, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes updating the solution set based on a time since presenting the data based on the solution set to the at least one user.
9. (Original) A method according to claim 1, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes:
  - generating a population based on the evolutionary scheme and the at least one user input, and,
  - applying the population to at least one data set.

10. (Original) A method according to claim 1, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes:

based on whether a condition is satisfied, iteratively using the evolutionary scheme and the at least one user input to generate an updated solution set before presenting the data based on the solution set to the at least one user.

11. (Original) A method according to claim 10, where the condition includes at least one of: satisfying a number of generations, satisfying a fitness function level, achieving a specified distance between solution alternatives, and achieving a diverse population.

12. (Original) A method according to claim 1, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes applying at least one constraint to the at least one data set.

13. (Original) A method according to claim 12, where applying at least one constraint include weighting the at least one constraint.

14. (Currently amended) A method according to claim ~~13~~<sup>14</sup>, where weighting includes weighting based on a user associated with the constraint.

15. (Original) A method according to claim 1, where presenting data based on a solution set includes identifying solutions from the solution set to present to the at least one user.

16. (Original) A method according to claim 15, where identifying solutions includes identifying based on at least one constraint.

17. (Original) A method according to claim 15, where identifying solutions includes identifying based on a best fit.
18. (Original) A method according to claim 1, where presenting data based on a solution set includes presenting at least one of: collective behavior, at least one physical property of at least one solution in the solution set, at least one statistical measure, and at least one statistical plot.
19. (Original) A method according to claim 1, where the at least one user input is asynchronously obtained.
20. (Original) A method according to claim 1, further comprising modifying at least one solution of the solution set based on at least one input from the at least one user.
21. (Original) A system, comprising:  
at least one processor in communications with at least one display, the at least one processor having instructions for causing the at least one processor to: present on the at least one display, data based on a solution set to at least one user, the solution set based on an evolutionary scheme in which an objective function is a priori mathematically unexpressed, receive at least one input from the at least one user, the at least one input based on the at least one user's evaluation of the presented solution set, and, based on the at least one user input, use at least the evolutionary scheme and the at least one input to generate an updated solution set, and iteratively repeat the present and receive instructions.

22. (New) A computer-readable medium having computer-readable signals stored thereon that define instructions which, as a result of being executed in a computer system having a user interface including a display and an input device, instruct the computer system to perform a method, comprising:

generating a solution set based on an evolutionary scheme in which an objective function is a priori mathematically unexpressed,  
presenting on the display data based on the solution set to at least one user,  
receiving through the input device at least one input from the at least one user, the at least one input based on the at least one user's evaluation of the presented solution set, and,  
based on the at least one input, using at least the evolutionary scheme and the at least one input to generate an updated solution set, and repeating the presenting and receiving.

23. (New) A computer-readable medium according to claim 22, where the at least one user input includes at least one of: a rank of solutions in the solution set, a rating of solutions in the solution set, one or more fitness values, a selection of a solution in the solution set, a selection of a feature of at least one solution in the solution set, a termination of the method, an identification of parents for a genetic algorithm, at least one constraint, a modification of at least one constraint, a modification of at least one genetic operator, and a specification of at least one genetic operator.

24. (New) A computer-readable medium according to claim 23, where the at least one genetic operator includes at least one of: selection, crossover, mutation, and elitism.

25. (New) A computer-readable medium according to claim 22, where the method is terminated based on the at least one user input.
26. (New) A computer-readable medium according to claim 22, where presenting data based on a solution set to the at least one user includes at least one of: presenting data based on the solution set in parallel, and presenting data based on the solution set in sequential order.
27. (New) A computer-readable medium according to claim 22, where receiving at least one input includes aggregating the at least one input.
28. (New) A computer-readable medium according to claim 22, where receiving at least one input includes weighting the at least one input from the at least one user.
29. (New) A computer-readable medium according to claim 22, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes updating the solution set based on a time since presenting the data based on the solution set to the at least one user.
30. (New) A computer-readable medium according to claim 22, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes:  
generating a population based on the evolutionary scheme and the at least one user input, and,  
applying the population to at least one data set.

31. (New) A computer-readable medium to claim 22, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes:

based on whether a condition is satisfied, iteratively using the evolutionary scheme and the at least one user input to generate an updated solution set before presenting the data based on the solution set to the at least one user.

32. (New) A computer-readable medium according to claim 31, where the condition includes at least one of: satisfying a number of generations, satisfying a fitness function level, achieving a specified distance between solution alternatives, and achieving a diverse population.

33. (New) A computer-readable medium according to claim 22, where using at least the evolutionary scheme and the at least one input to generate an updated solution set includes applying at least one constraint to the at least one data set.

34. (New) A computer-readable medium according to claim 33, where applying at least one constraint include weighting the at least one constraint.

35. (New) A computer-readable medium according to claim 34, where weighting includes weighting based on a user associated with the constraint.

36. (New) A computer-readable medium according to claim 22, where presenting data based on a solution set includes identifying solutions from the solution set to present to the at least one user.

37. (New) A computer-readable medium according to claim 36, where identifying solutions includes identifying based on at least one constraint.

38. (New) A computer-readable medium according to claim 36, where identifying solutions includes identifying based on a best fit.

39. (New) A computer-readable medium according to claim 22, where presenting data based on a solution set includes presenting at least one of: collective behavior, at least one physical property of at least one solution in the solution set, at least one statistical measure, and at least one statistical plot.

40. (New) A computer-readable medium according to claim 22, where the at least one user input is asynchronously obtained.

41. (New) A computer-readable medium according to claim 22, further comprising modifying at least one solution of the solution set based on at least one input from the at least one user.